

**IN THE UNITED STATES PATENT OFFICE**

IN RE APPLICATION:

Title: Nano Size Semiconductor Components & Method of Making

Applicant: Nathaniel R. Quick

Art Unit: 2825

Serial No.: 10/684,930

Examiner: Igwe U. Anya

Filed: October 13, 2003

Attorney File No: 2003-0026

DECLARATION OF PRIOR INVENTION
37 C.F.R. 1.131

Commissioner For Patents
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

I, Nathaniel R. Quick, hereby declare and state that:

1. I am a citizen of the United States of America and a resident of the State of Florida having a mailing address of 894 Silverado Court, Lake Mary, Florida 32746.
2. I am the sole inventor and owner of the entire right, title and interest of the subject pending patent application
4. I am in graduate of the Cornell University receiving any Ph.D. degree in Materials Science and Engineering in January 1976.
5. During 1980 to 1985, I was employed by the American Telephone and Telegraph Corporation, Bell Laboratories/ Consumer Product Laboratories in Indianapolis, Indiana. During my employment at Bell laboratories, I was a Supervisor involved with the development of keypad and interconnect technology. As a part of the development of

BEST AVAILABLE COPY

- keypad and interconnect technology, I utilized lasers to create conductive carbon tracks on polymer and organic based printed circuit boards.
6. During 1985 to 1990, I formed a company called Applitech of Indiana, Inc. Applitech of Indiana produced and developed conductive powders for conductive polymers. During the production and development conductive powders, laser technology was developed to cure and tune the conductivity of the conductive polymers.
 7. During 1990 to 1996, I was employed by the EG&G Rocky Flats, Inc./Kaiser-Hill (operator of the United States Department of Energy at Rocky Flats, Colorado) as a technology program manager. As a condition for my employment, I was allowed to develop my personal technology, on my personal time and at my personal expenses relating to the laser conversion of electro-conductors, semiconductors and insulators in advanced ceramic materials.
 8. In 1996, I was hired as vice president of Research and Development of the Fluid Dynamics Division of Memtec Corporation. As a condition for my employment, I was allowed to develop my personal technology on my personal time and at my personal expenses relating to the laser processing and conversion of advanced ceramic materials. Memtec Corporation was later acquired by U.S. Filter Corporation and ultimately sold to the Pall Corporation.
 9. In 2002, I formed AppliCote Associates L.L.C. to continue to develop my personal technology relating to the laser processing and conversion of advanced ceramic and semiconductor materials.
 10. In 1998, as a part of my efforts to develop my personal technology of the laser processing and conversion of advanced ceramic, semiconductor and other electronic materials, I contracted with CREOL to perform certain experiments and development work at my

BEST AVAILABLE COPY

direction. CREOL is an acronym for Center For Research and Education in Optics and Lasers and is owned by the University of Central Florida a part of the University system of the state of Florida.

11. Under my contract with CREOL, CREOL provided laboratory and laser equipment as well as work for hire labor by post doctorate researchers and graduate students. CREOL provided Dr. Aravinda Kar as work for hire to provide laser materials processing facilities that I required for the continued development of my technologies.
12. As a part of my contract with CREOL, CREOL provided Dr. Islam Salama (a graduate student) to perform certain experiments and development. I partially sponsored and financed the graduate studies of Dr. Islam Salama. The 2003 thesis of Dr. Islam Salama was based on my technologies and I was a member of the thesis review committee of Dr. Islam Salama.
13. I directed some of the research, including the subject matter of the subject patent application. The laser writing of nano-conductors and nano-semiconductors within wide bandgap semiconductor substrates is an extension of my inventions set forth in the following United States Patents.
 - a. Method of Making a Laser Synthesized Ceramic Electronic Devices and Circuits
U.S. Patent No. 5,837,607 issued November 17, 1998
 - b. Laser Synthesized Ceramic Electronic Devices and Circuits and Method for Making
U.S. Patent No. 6,025,609 issued February 15, 2000
 - c. Method for Making Laser Synthesized Ceramic Electronic Devices and Circuits
U.S. Patent No. 6,054,375 issued April 25, 2000
 - d. Laser Synthesized Ceramic Sensors and Method for Making
U.S. Patent No. 6,271,576 issued August 7, 2001
 - e. Laser Synthesized Wide-Bandgap Semiconductor Electronic Devices and Circuits
U.S. Patent No. 6,670,693 issued December 30, 2003
14. As a result of the my contract with CREOL, several inventions were verified and/or made and several patent applications have been filed regarding the technology of the laser

BEST AVAILABLE COPY

processing and conversion of advanced ceramic and semiconductor materials laser conversion of various materials.

15. I have been careful to identify true and correct inventor and/or inventors of the several inventions verified and/or made during my contract with CREOL. To date the following patent applications have been filed in the United States Patent Office:

- a. Apparatus & Method For Crystallographic Transformation of Substrate
Serial No: 60/546,564 filed February 19, 2004
Inventor: N. Quick
- b. Process for Fabricating Semiconductor Component
Serial No: 60/575,851 filed June 1, 2004
Inventors: N. Quick, A. Kar & I. Salama
- c. Laser Assisted Nano Deposition
Serial No: 60/592,925 filed July 26, 2004
Inventors: N. Quick & A. Kar

16. Claims 23-30 of the subject application have been rejected under 35 U.S.C. 102 as being anticipated by Salama et al , presentation of the paper entitled *Laser Direct Write For Wide Band Gap Semiconductor Device Fabrication* at the 2003 International Symposium on Compound Semiconductors Conference, held in San Diego, CA, August 25-27, 2003. The paper *Laser Direct Write For Wide Band Gap Semiconductor Device* presentation precedes the filing date of the subject patent application by less than two months.

17. I am a coauthor of the cited proceedings paper entitled *Laser Direct Write For Wide Band Gap Semiconductor Device Fabrication* presented at the 2003 International Symposium on Compound Semiconductors Conference, held in San Diego, CA, August 25-27, 2003.

18. I verily believe that all matter set forth in the subject application serial number 10/684,930 was invented by me before the publication of the article entitled *Laser Direct Write For Wide Band Gap Semiconductor Device Fabrication* presented at the 2003 International

Symposium on Compound Semiconductors Conference, held in San Diego, CA, August 25-27, 2003.

19. I verily believe that the subject matter of Claims 23-30 of the subject application serial number 10/684,930 was invented by me before the presentation of the paper entitled *Laser Direct Write For Wide Band Gap Semiconductor Device Fabrication* at the 2003 International Symposium on Compound Semiconductors Conference held in San Diego, CA, August 25-27, 2003.
20. I verily believe that I was diligent in filing the subject application serial number 10/684,930 after the invention was conceived solely by me.
21. I verily believe that the forgoing has established the invention of the subject matter of the rejected claims 23-30 prior to the effective date August 25, 2003 of the paper entitled *Laser Direct Write For Wide Band Gap Semiconductor Device Fabrication* presented at the 2003 International Symposium on Compound Semiconductors Conference held in San Diego, CA, August 25-27, 2003.
22. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

12/9/04
Date

Nathaniel R. Quick
Nathaniel R. Quick

BEST AVAILABLE COPY